Why is the relative preference for government jobs on the rise in Bangladesh? Evidence from labour force surveys

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ABSTRACT

This article examines the underlying factors contributing to the changing scenario concerning relative attractiveness of public sector jobs in Bangladesh vis-à-vis private sector jobs. The article quantifies wage differentials between the public and the private sector, and examines the changes as regards earnings inequalities between group (public versus private) and within group (within private sector employees), in response to the new pay scale introduced for public sector employees in Bangladesh. The analysis reveals that following salary scale revision of particularly 2015, public sector jobs in the country have become more attractive for job seekers looking for salaried employment. Whilst there has been a shift favouring the entire range of wage distribution curve, it is more evident for jobs at the entry level. Although the higher-paid private sector employees appear to have been able to adjust their salaries in response to government pay scale revision, the relatively low-paid ones in the private sector have not been able to. Additionally, public sector jobs have the added advantage of non-wage benefits of larger coverage compared to the private sector. All these factors have combined to bring a shift in preference in favour of public sector jobs in Bangladesh. The article has argued that the recent 'quota movement' in Bangladesh, with the demand to revise the existing quota system in the country, reflects this shifting preference on the part of those entering the job market in recent times.

Keywords: Wage Differentials; Quantile Decomposition; Quantile Regression; Public Employment; Employment Benefits

JEL Classification: C21, E20, J3, J45, P35

1. Introduction

The state of relative preference among salaried job seekers in Bangladesh, between public (government) and private sector jobs, has varied significantly over the past years. At independence, with an underdeveloped private sector, it was the public sector which provided the major part of salaried employment opportunity in Bangladesh. With the economy starting to open up in the early 1990s, in the backdrop of the policies of trade liberalisation, privatisation and deregulation, and the consequent emergence of a vibrant private sector, increasingly more job opportunities started to be created in the private sector. Since the early 1990s, for young educated people, private sector jobs became more attractive compared to public sector jobs mainly because of the relatively better compensation package on offer. True, because of the increasingly large number of educated young people coming out of the education system (at bachelors/masters level), the demand for both the public and the private jobs have always been high in the country. However, in a relative sense, as is evident from available information, the first choice for many had been for the private sector jobs. This situation has begun to gradually change in recent years, particularly following the last two pay scale revisions for public servants in 2009 and 2015. Whilst salary revisions in public sector induces the private sector also to go for some adjustments, the difference in attractiveness between the two appears to be shifting in favour of the former. The recent 'quota movement'; in Bangladesh, spearheaded by students demanding a revision of the current quota system for government jobs reinforces this line of thinking.[1]

[1] As it is, 56 per cent of government jobs in Bangladesh are at present covered by quotas of various types (for children and grand children of freedom fighters, women, marginalised groups etc.).

Relative attractiveness between private and public sector jobs has been examined from various perspectives in relevant studies and global literature on the subject is rich.[2] Studies have focused on a range of issues including demand side analysis, determinants of entry into jobs, earning differentials, cash and in-kind benefits, job satisfaction, efficiency and productivity. However, few studies have examined changes in relative attractiveness between public and private sector jobs in response to government policy changes, such as introduction of new payable scale for public sector employees.

In view of the above, this article examines how the situation as regards between group (public versus priate) and within group (within private sector employees) inequalities have changed in response to the new payscale for public sector employees in Bangladesh. This line of investigation has not been carried out in the context of Bangladesh's public and private sector employment. Nor has quantile decomposition tool been used for purposes of analysing the wage differentials between public and private sector employment in Bangladesh. In addressing issues of wage differentials between public and private employment. The study also examines employment-related benefits.

The remainder of the paper is organized as follows. Section 2 reviews the literature on the relative scenarios concerning public and private sector wages, and wage differentials. Section 3 elaborates on the estimation methodology for the analysis undertaken and the justification of using the proposed models. Section 4 presents a brief overview of the

[2] Studies include Fogel and Lewin (1974); Melly, (2005); Poterba and Rueben (1995); Lucifora and Meurs (2006); Mahuteau et al., (2017); Ehrenbergh and Schwarz, (1986); Blackaby et al., (1999); Birch, (2006); Elliott et al., (2007); Campos and Centeno, (2012); Christopulou and Monastiriotis, (2013); Lausev, (2014); Nikolic, (2014); Hospido and Moral-Benito, (2016).

available data. Section 5 presents results of the empirical analysis. Section 6 concludes the paper.

2. Literature review

Both country-specific and cross-country studies have looked at issues of and wage differential between the private and public sector employees, from various dimensions including determinants, bargaining strength of employees, political economy as also within group dynamics.

Backer (1957) argues that the public-sector wage is primarily driven by political motive, and not profit maximization motive as against the private sector which has a different set of objectives including profit maximization. Fogel and Lewin (1974) also mentions about absence of a motive for profit maximization in government, pointing out that conventional demand curve for labour may not be applicable here. Thus, public employers' demand curves are inferred indirectly through “demands for government services and directly through political bargaining between governments and employee groups," rather than through a marginal revenue product curve. On the other hand, in the competitive labour market, private sector wages are determined by the marginal revenue product curve (Fogel and Lewin, 1974). Government may also go for offering higher wages to attract cadres of better quality (Melly, 2005).

Comparing the relative wages, Smith (1976, 1977) found that in the United States, average pay was higher in the public sector than the public sector.

In recent times, social scientists have used quantile regression (Koenker and Bassett, 1978) and quantile decomposition (Chernozhukov et al., 2013) techniques to study group

differences. Quantile decomposition is similar to Oaxaca-Blinder decomposition (Oaxaca, 1973 and Blinder, 1973) but conditional at different quantiles. The method divides total differential between coefficient effect and characteristics effects at conditional quantile. Public-private wage differential was studied by a number of studies by using this technique.

Poterba and Rueben (1995) using quantile regression and the data from Employer Cost Index 1993, and Current Population Survey 1992 found that, in the lower tail of the wage distribution the state and local government employees enjoy a wage premium but in the upper tail of the wage distribution they incur a wage penalty. Muller (1998) studied the wage differential between public and private sector using Canadian LMAS data and found wage premium for public sector employees in the lower tail of the wage distribution (9.9% wage premium at the 10^{th} percentile and 1.4 per cent wage penalty at 90^{th} percentile for male sample). Melly (2005) found that in Germany female employees enjoy 26.9 per cent wage premium at the 10^{th} percentile and the wage premium decreased to 6.9 per cent at the 90^{th} percentile. In contrast, male employees suffer a wage penalty of 17.4 per cent at the 90^{th} percentile and enjoy a 5.0 per cent wage premium at the 10^{th} percentile. Lucifora and Meurs (2006) by using nationally representative survey data from UK, Italy and France found the presence of wage premium in the public sector. For France, the raw differential for a male is 14.0 per cent in the 10^{th} percentile and 7.2 per cent in the 90^{th} percentile. For a female, the differential is 18.3 per cent at the 10^{th} percentile and 16.8 per cent at the 90^{th} percentile. In Italy, the total wage differential for a male are 34.6 per cent at the 10^{th} percentile and 28.1 per cent at the 90^{th} percentile. For a female, the wage differential at the 10^{th} and the 90^{th} percentile are 48 per cent and 36.3

per cent respectively. In Britain, the total wage differential for male at 10th and 90th percentile were estimated at 19.0 per cent to 11.0 per cent respectively and for female 33.8 per cent to 20.8 per cent respectively at 10th and 90th percentile. Mahuteau et al., (2017), by deploying quantile panel data regression approach found that in Australia average employees in the public sector earned a wage premium of about 13.6 per cent on their hourly wage at 10th percentile but suffer from wage penalty of 0.9 per cent at 90th percentile. Studies tend to agree that: a) on an average, public sector employees receive a wage premium, b) wage distribution in the public sector is more compressed and hence public sector employees enjoy a higher wage premium at the lower part of the wage distribution. Social scientists have also studied the relative preference between public and private sector jobs, with particular focus on determinants of social nature (Ehrenbergh and Schwarz, 1986; Blackaby et al., 1999; Birch, 2006; Elliott et al., 2007; Campos and Centeno, 2012; Christopulou and Monastiriotis, 2013; Lausev, 2014; Nikolic, 2014; Hospido and Moral-Benito, 2016).

3. Estimation Methodology

As was pointed out, while several studies have examined issues of wage premium in the contract of private and public sector jobs in the context of a number of countries, this has not been carried out in the particular context of Bangladesh. This paper has made an attempt to examine the presence of wage differential/wage premium between public and private sector jobs in Bangladesh, in relation to policy interventions i.e. salary scale revision for public sector employees. To illustrate the working hours, job facilities, and flexibility both in the public and private sector we generally take recourse to descriptive analysis such as mean and percentage. To study the wage differentials between the public

and private sector Oaxaca-Blinder decomposition and quantile decomposition method, discussed below, is applied.

Oaxaca-Blinder Decomposition

A widely used tool to examine the wage gap by specific groups (e.g. public vs private) is the Oaxaca Blinder decomposition methods (Oaxaca, 1973; Blinder, 1973). This method divides the wage differential into two parts: the "explained" part that looks at group difference in productivity characteristics such as education and work experience. The "unexplained" part measures the wage premium which cannot be accounted for by wage determinants.

Given, there are two groups – private (1) and the public (0), an outcome variable wage (W), and a set of predictors. The method can be written as follows: $Difference = E(W_{0)} - E(W_1)$, where $E(W)$ denotes the expected value of the outcomes variable and is accounted for by the grouped difference in the predictors. Based on the linear model we write the wage function for both public and private sector employees as: $W_l = X_l^T \beta_l + \epsilon_l, E(\epsilon_l) = 0,\ l \in \{X, W\}$, where X is a vector containing the predictors and a constant, β denoting the slope parameters and intercept, and ϵ is error term. Based on this, the regression model, a popular form of two-fold decomposition of labour market differential, can be written as (Jann, 2008):

$$Difference = [E(X_0) - E(X_1)]^T \beta^* + E[(X_0)^T(\beta_0 - \beta^*) + E(X_1)^T(\beta^* - \beta_1)] \text{-----(1)}$$

The first part, $[E(X_0) - E(X_1)]^T \beta^*$, is the outcome difference that is explained by productivity characteristics. The second part, $E[(X_0)^T(\beta_1 - \beta^*) + E(X_1)^T(\beta^* - \beta_1)]$, is

attributed to discrimination and it also captures all the potential effects of differences in unobserved variables.[3]

Wage Decomposition in Quantile Counterfactual Distributions

The Oaxaca-Blinder decomposition only provides average differences in wage. However, statistical measures of the public-private wage gap based on average effects could mask important differences along the distribution of wages.

Since Koenker and Bassett (1978) the quantile regression approach has become relatively popular to study the effects of a covariate (X) on the entire spectrum of conditional distribution of the dependent variable (Y) [wage (W) in this case]. Quantile regression provides a more complete picture of the conditional distribution of Y given X = x when both lower and upper quantiles are of interest. More concretely, we can specify the τ^{th} quantile of the conditional distribution of Y_i given X_i as a linear function of the covariates, $Q_\tau(y_i|X_i) = X_i\beta_i, \tau \epsilon (0,1)$. The quantile regression estimator of β_τ estimates the effect of the covariates on the τ^{th} quantile of the dependent variable and solves the following problem (Koenker and Bassett, 1978):

$$\beta_\tau = argmin_\beta \left[\sum_{i \in \{i: y_i \geq X_i\beta} \tau |y_i - X_i\beta| + \sum_{i \in \{i: y_i \geq X_i\beta} (1-\tau) | y_i - X_i\beta \right]$$

Given the quantile regression method in equation (i), we can now present the detailed formulation of the Oaxaca-Blinder decomposition in the context of the whole distribution of wages (based on Chernozhukov et al., 2013) as follows[4]:

[3] Stata user written command the *oaxaca* has been used for this purpose. This is available at RePEc.

[4] The idea of presenting Quantile counterfactual decomposition in seven steps was introduced by Hospido and Moral-Benito (2016).

Step 1. Quantile regressions: We separately run two different sets of quantile regressions, one for the public sector (group 0) and one for the private sector (group 1) to obtain the two sequences of quantile coefficients $\beta^0_{\tau_j}$ and $\beta^1_{\tau_j}$ for $j = 1, \dots, J$ with $\tau_j \in (0,1) \forall\, j$. Despite asymptotically one could estimate an infinite number of quantile regressions for each group ($i.e. J \to \infty$), following the idea in Chernozhukov (2013) we only estimate 100 different regressions to approximate the whole quantile function (i.e. J = 100).

Step 2. Conditional quantile functions: Given the quantile regression coefficients obtained in the first step, it is straightforward to estimate the τ_j's conditional quantile of Y_g given X_i by computing $X_i^{'} \beta^g_{\tau_j}$ where $g = (0,1)$ represents the group (public or private employees). Hence, we can construct the two conditional quantile functions as follows: $q^1_{\tau_j} = X_i^{'} \beta^1_{\tau_j}; \forall_j = 1, \dots, J$; and $q^0_{\tau_j} = X_i^{'} \beta^0_{\tau_j}; \forall_j = 1, \dots, J$.

Step 3. Conditional distribution functions: We can also estimate the conditional distribution function by inverting the conditional quantile function obtained in step 2 so that:

$$\hat{F}_{Y_1}(q|X_i) = \int_0^1 (1(X_i^{'} \hat{\beta}^1_{\tau_j} \le q)\, d\tau) = \sum_{j=1}^{J} (\tau_j - \tau_{j-1}) 1(\beta^1_{\tau_j} \le q)$$

$$\hat{F}_{Y_0}(q|X_i) = \int_0^1 (1(X_i^{'} \beta^0_{\tau_j} \le q)\, d\tau) = \sum_{j=1}^{J} (\tau_j - \tau_{j-1}) 1(\beta^0_{\tau_j} \le q)$$

where $F_Y(q)$ refers to the cumulative distribution function (CDF) of the random variable Y evaluated at q, $F_Y^{-1}(\tau)$ represents the inverse of the CDF, also known as quantile function evaluated at $0 < \tau < 1$, and $F_Y(q|X_i)$ refers to the conditional CDF of Y evaluated at q and given the realization $X = Xi$.

Step 4. Unconditional distribution functions: We can now estimate the unconditional distribution function for public (g = 0) and private (g = 1) employees as follows:

$$\widehat{F_{Yg}}\,(q|g=1) = \int \hat{F}_{Y_g}\,(q|x)dF_X(x|g=1) = \frac{1}{n_1}\sum\nolimits_{i;g=1} \hat{F}_{Y_g}\,(q|X_i)$$

$$\widehat{F_{Yg}}\,(q|g=0) = \int \hat{F}_{Y_g}\,(q|x)dF_X(x|g=0) = \frac{1}{n_0}\sum\nolimits_{i;g=0} \hat{F}_{Y_g}\,(q|X_i)$$

Where n_1 and n_0 are the number of public and private employees in the sample.

Step 5. Unconditional quantile functions: Given our interest in simulating counterfactual quantiles to decompose differences in the distribution of wages, we estimate the unconditional quantile function. For this purpose, we take as an estimator of the τ^{th} quantile of the unconditional distribution from step 4 the minimum of the set as follows:

$\hat{q}^1_\theta = \inf\left\{q\colon \frac{1}{n_1}\sum_{i:g=1}\hat{F}_{Y_1}(q|X_i) \geq \theta\right\}$; and $\hat{q}^1_\theta = \inf\left\{q\colon \frac{1}{n_1}\sum_{i:g=1}\hat{F}_{Y_1}(q|X_i) \geq \theta\right\}$

Step 6. Counterfactual quantile functions: Equipped with the previous function estimates, we are now able to estimate the counterfactual quantile function. That is, we estimate the τ^{th} quantile of the distribution that we would observe if private employees (g = 0) would be paid as public employees (g = 0): $\hat{q}^c_\tau = \inf\left\{q\colon \frac{1}{n_1}\sum_{i:g=1}\hat{F}_{Y_1}(q|X_i) \geq \tau\right\}$

Note that for the construction of the conditional distribution $\hat{F}_{Y_1}\,(q|X_i)$ we used in step 3 the coefficients estimated for the private employees, i.e., $\beta^1_{\tau_j}$; and we are computing the counterfactual quantile using the Xs among public employees.

Step 7. Decomposition: In the spirit of the Blinder-Oaxaca method, we can now compute a decomposition of the difference between at τ^{th} quantile of the unconditional distribution between public and private employees as follows[5]:

$$Q_{\mathrm{W}(0|0)}(\tau) - Q_{\mathrm{W}(1|1)}(\tau) = \underbrace{\left[Q_{\mathrm{W}(0|0)}(\tau) - Q_{\mathrm{W}(1|0)}(\tau)\right]}_{i} + \underbrace{\left[Q_{\mathrm{W}(1|0)}(\tau) - Q_{\mathrm{W}(1|1)}(\tau)\right]}_{ii}$$

In the above equation, the first part represents the counterfactual effect of the conditional distribution (characteristics effect). The second part denotes the counterfactual effect of changing the covariates distribution (known as coefficient effect) of the corresponding coefficient of the difference between the τ^{th}quantile of the public-sector wage distribution and τ^{th}quantile of the private sector wage distribution.[6]

4. Data Source and Variables

The present study uses the LFS 2010, 2013, 2015-2016, and 2016-17 data of Bangladesh Bureau of Statistics (BBS). This is a cross-section dataset. The sample size has been expanded gradually between 2010 and 2016-17 to make these more representative. For the purpose of the present study we have selected a sub-sample of employed individuals in the age range of 25 and 59 years who have earned wages/salaries during the reference period of the survey. Thus, this sub-sample group includes salaried employees from both public and private sectors. Many of the public-sector jobs require four years bachelor degree which means (12+4 =) 16 years or more of formal education. If 6 years is taken as the average year of starting primary education, this will put the person at 22 years. if an

[5] The *cdeco* command in Stata has been used for this purpose. This is available at https://sites.google.com/site/blaisemelly/home/computer-programs/inference-on-counterfactual-distributions/

[6] Detailed derivation and estimation procedure can be found at (Koenker and Bassett,1978), (Machado and Mata, 2005), (Koenker and Hallock, 2001), (Chernozhukov et al., 2013)

additional 2-3 years of effective employment is added to this as advocated by Melly (2005), 25 years of age would the minimum age, maximum age is taken as 59 years (retirement age in Bangladesh). In addition, the research considers only *full time paid individuals*. Sample size extracted from the various LFSs are given in Table 1.[7]

To estimate the wage differentials, we use the log of hourly wage as the dependent variable in calculating the sectoral wage gap. However, the hourly wage is not available in LFSs. For 2011 and 2013, the BBS reported weekly wage; monthly wage was reported in 2015-16, and 2016-17 LFS. We convert the monthly wage to weekly wage by a factor (of 12/52) and weekly wage is converted to hourly wage by dividing it by working hours per week as is reported in the LFSs. The logarithmic form will allow us to calculate the percentage difference in wage between public and private sector. In contrast to the log hourly wage, monthly wage, for example, tends to underestimate the wage differentials because working hours is higher for private sector employees (see, Ahmed and McGillivray (2015))

Table 1: Sample selection

Employes	2010	2013	2015-16	2016-17
Public employees	1,575	2,808	4,960	5,368
Private employees	1,792	5,119	10,979	8,985

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

For the wage equation regression model, we use age, age squared, education, education square, occupation dummy, rural dummy, and regional dummy, marital status, and gender dummy. These are widely used variables in the wage equation. For the detailed

[7] Ahmed and McGillivray (2015) provide justification of selecting full time paid individuals for estimating wage equations.

justification of including these variables in the wage equations, a number of studies may be referred to (Blinder, 1973; Melly, 2005; Oaxaca, 1973; Ahmed and McGillivray, 2015). Summary statistics of some key variables for public and private employees are given in Table 2 and Table 3 respectively.

Table 2: Summary Statistics for public employees

Variable	2010		2013		2015-16		2016-17	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Log (Hourly wage)	3.9	0.5	4.4	0.42	4.6	0.46	7.8	0.51
Education	5.5	1.8	11.9	2.9	11.1	3.0	11.4	2.72
Age	41.2	9.2	40.5	9.4	41.2	9.5	41.1	9.48
Female[8]	0.16	0.37	0.26	0.44	0.21	0.41	0.23	0.42
Rural[7]	0.55	0.49	0.20	0.40	0.27	0.44	0.24	0.43
Ever married[7]	0.94	0.23	0.94	0.24	0.94	0.24	0.94	0.24

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

Table 3: Summary Statistics for private employees

Variable	2010		2013		2015-16		2016-17	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Log (Hourly wage)	3.7	0.6	4.1	0.5	4.2	0.58	4.3	0.67
Education	3.5	2.3	9.8	3.7	9.3	4.4	9.5	4.17
Age	36.8	8.9	35.7	8.7	36.6	8.8	36.5	8.63
Female	0.15	0.36	0.25	0.43	0.25	0.43	0.23	0.42
Rural	0.58	0.49	0.29	0.45	0.25	0.43	0.29	0.46
Ever married	0.91	0.28	0.90	0.29	0.90	0.29	0.89	0.30

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

In calculating wage from BBS's LFS data, authors have considered wage from both primary and secondary occupation. We have also considered the monetary value of

[8] Female = 1 if individual is a female; 0 otherwise; Rural = 1 if individual lives in rural area; 0 otherwise; Ever married = 1 if individual is ever married; 0 otherwise

earnings in other form since a large part of wage/benefit in the public sector comes in the form of various forms of transfers.

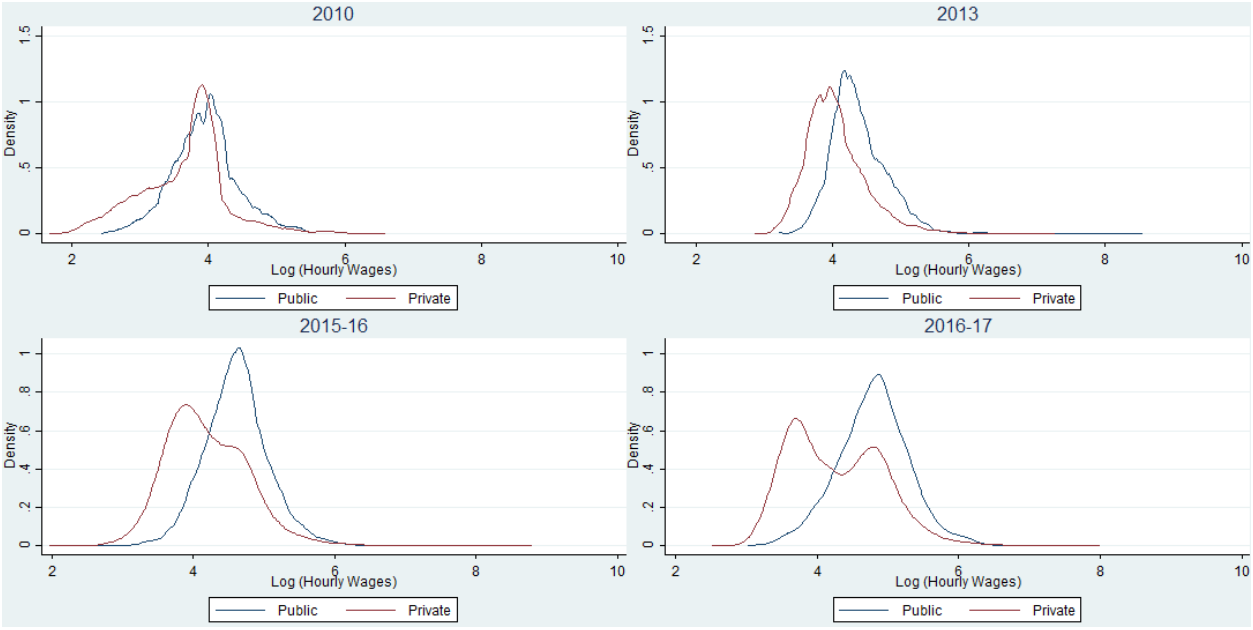
5. Results and Discussion

This section starts with a discussion as regards the raw wage differentials and density functions of wages for respective years. In this connection, the Oaxaca-Blinder decomposition and the quantile decomposition of wages are presented in Table 4, job facilities in Table 8, and working hours in Table 9. Finally, sub-section 5.2 offers insights form the salary scale revision of public employment.

5.1. Wage Differentials between Public and Private Sector Jobs

In 2013 the average monthly wage for private sector employees was BDT 14,376; for public sector employees this was BDT 15,904 (the raw wage differential was 10.6 per cent). In 2015-16 average wage in the private sector was BDT 17,969 and for the public sector it was BDT 22,040 (the raw wage differential had increased to 22.7 per cent). However, the average wage differences do not fully reflect the wage premium due to different attributes of public and private sector employees. Moreover, these average differentials only provide differences at the mean and do not capture the differences in wage at the tails of the wage distribution.

Figure 1: Distribution of wage density by public-private



Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

We display the density of wages in figure 1 where the blue line is for public-sector employees and the red line is for private sector employees. For all the three time points, we observe different levels of compression and depression for public and private sector employees: wages are more compressed for public sector employees'; private sectors' employee's wages are more dispersed. We find a lower ceiling for wages for public sector employee. This is because in the public-sector there is presence of grading system for the employees and the salary scale ensures a minimum wage for the employees in the lowest grade which is not the case for the private sector employees. This binding is also true for high wage earners in public employment. With *lower floor* and *higher ceilings*, public sector compresses the wage distribution.

Table 4: Oaxaca-Blinder and Quantile Decomposition of Public-Private Wage Differentials

Dependent Variable: Log Hourly Wages

Quantile	(2010)			(2013)		
	Total Effect	Char. Effect	Coeff. Effect	Total Effect	Char. Effect	Coeff. Effect
10	0.600	0.228	0.372	0.361	0.118	0.242
	(0.053)	(0.071)	(0.085)	(0.025)	(0.019)	(0.015)
20	0.470	0.288	0.182	0.336	0.049	0.287
	(0.046)	(0.060)	(0.075)	(0.000)	(0.022)	(0.023)
30	0.318	0.223	0.095	0.374	0.133	0.241
	(0.038)	(0.066)	(0.073)	(0.019)	(0.017)	(0.017)
40	0.219	0.219	0.000	0.336	0.049	0.288
	(0.038)	(0.044)	(0.035)	(0.003)	(0.015)	(0.016)
50	0.138	0.154	-0.016	0.311	0.080	0.231
	(0.014)	(0.037)	(0.037)	(0.009)	(0.006)	(0.007)
60	0.189	0.189	0.000	0.389	0.127	0.262
	(0.029)	(0.047)	(0.049)	(0.029)	(0.021)	(0.019)
70	0.187	0.154	0.032	0.336	0.080	0.226
	(0.009)	(0.054)	(0.055)	(0.019)	(0.025)	(0.029)
80	0.336	0.174	0.162	0.360	0.163	0.197
	(0.032)	(0.029)	(0.033)	(0.021)	(0.024)	(0.029)
90	0.316	0.133	0.182	0.269	0.081	0.187
	(0.051)	(0.172)	(0.174)	(0.030)	(0.032)	(0.039)
Oaxaca-Blinder	0.295	0.155	0.139	0.331	0.125	0.206
	(0.019)	(0.015)	(0.023)	(0.010)	(0.006)	(0.011)

(continue from Table 4)

Quantile	(2015-16)			(2016-17)		
	Total Effect	Char. Effect	Coeff. Effect	Total Effect	Char. Effect	Coeff. Effect
10	0.521	0.182	0.339	0.665	0.319	0.345
	(0.009)	(0.021)	(0.022)	(0.016)	(0.016)	(0.022)
20	0.539	0.212	0.327	0.747	0.342	0.405
	(0.015)	(0.019)	(0.019)	(0.012)	(0.017)	(0.015)
30	0.551	0.229	0.322	0.773	0.322	0.451
	(0.009)	(0.016)	(0.018)	(0.012)	(0.014)	(0.014)
40	0.544	0.208	0.336	0.722	0.300	0.422
	(0.010)	(0.011)	(0.012)	(0.014)	(0.016)	(0.017)
50	0.479	0.161	0.319	0.610	0.271	0.338
	(0.011)	(0.012)	(0.011)	(0.016)	(0.014)	(0.017)
60	0.405	0.142	0.264	0.437	0.226	0.211
	(0.013)	(0.009)	(0.012)	(0.015)	(0.012)	(0.015)
70	0.323	0.134	0.189	0.330	0.191	0.139
	(0.015)	(0.010)	(0.013)	(0.011)	(0.009)	(0.010)
80	0.274	0.141	0.134	0.309	0.188	0.121
	(0.013)	(0.012)	(0.010)	(0.012)	(0.009)	(0.010)
90	0.260	0.134	0.127	0.274	0.141	0.132
	(0.017)	(0.014)	(0.016)	(0.017)	(0.015)	(0.015)
Oaxaca-Blinder	0.419	0.188	0.231	0.520	0.262	0.259
	(0.009)	(0.006)	(0.008)	(0.009)	(0.007)	(0.008)

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)
Note: Probit distribution model has been applied for purposes of estimation. Bootstrap standard error with 100 repetitions are given in parenthesis. Following explanatory variables are included in each group: age, age squared, education, education square, occupation dummy, rural dummy, and regional dummy, marital status, and gender dummy.

In 2010, average hourly wage differential between public and private sector was 29.5 per cent. As stated in section 3, quantile regression reveals the dispersion in the public-sector wage premium which cannot be captured by using Oaxaca-Blinder decomposition. Poterba and Rueben (1995) which first applied quantile regression method and found that wage premium tend to decrease as quantile increase both for male and female. Quantile decomposition shows that at the 10^{th} percentile (bottom of the wage distribution) there is a 60% per cent wage differentials. At the 50^{th} percentile, the entry point for university graduates, the wage differential was 13.8 per cent 2010 which had increased to 61 per cent in 2016-17. This wage differential tends to be narrower and is lowest at the median (about 13.8 per cent). This shows that wage differentials are relatively lower for mid-level wage earners. The wage differentials are 33.6 per cent and 31.6 per cent at 8^{th} and 9^{th} deciles respectively (Table 4). This wage gap could be divided into two parts: originating from a) characteristics effect, and b) coefficient effect. For 2010 data, Oaxaca-Blinder decomposition shows that out of 29.5 per cent wage gap 15.5 per cent was due to differences in characteristics of employees in public employment and 13.9 per cent was wage premium in public sector employment. These two effects are also present throughout the range of wage distribution. At the first decile (for 2010), there is a 37.2 per cent wage premium and the rest is due to characteristic effect.

In 2013, the average wage differentials rose to 33.1 per cent. But the wage differentials tend to rise for mid-level wage earners. It transpires from the Table 4 that in 2010, at median (50th percentile), wage differential was 13.8 per cent but wage differentials rose to 31.1 per cent in 2013. Despite the higher wage differentials, the good signal was that market conditions had improved for the low-level wage earners as the wage differentials had come down from 60.0 per cent in 2010 to 36.1 per cent in 2013.

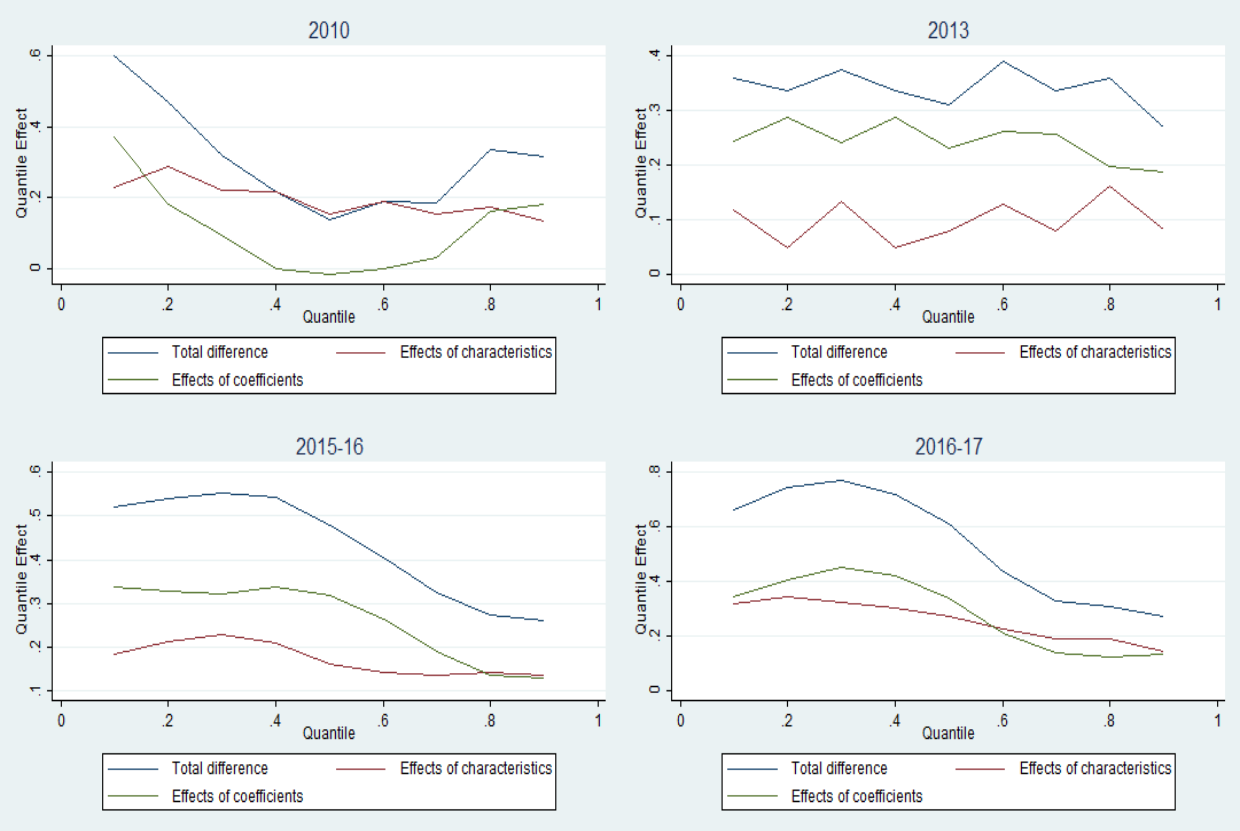
In 2015 GoB had revised the salary scale for public employees. This revision came into effect from January 2016. Last two-quarters of the survey was conducted when public employees had been enjoying benefits of the new salary scale. Thus, it was somewhat expected that wage differentials would be higher for 2015-16 than for 2010 and 2013. The average differentials in 2015-16 was 41.9 per cent (of which 18.8 per cent was due to characteristics effect and 23.1 per cent was due to wage premium in public sector). Highest wage differential was at the 10th percentile of wage distribution (52.1 per cent) and lowest at the top (26.0 per cent at 90th percentile).

The salary scale introduced in 2015 for public sector employees also stipulated that the basic salary was to increase by 5.0 per cent per year for subsequent years. In 2016-17 the average wage differential, taking cognizance of the per cent salary rise, was 52.0 per cent (10 per cent more than 2015-16). It's important to note that one of the main objectives of new salary scale introduced in 2015 was to attract more qualified employees to public sector. As can be seen from Table 4, the wage premium for public sector employees has increased by about 12 percentage points between 2010 and 2016-17 while for characteristics the increase was 11 percentage points.

Data in Table 4 shows the relative differential in wages in 2010 (following salary revision 2009) and 2015-16 (following salary revision in 2015). Table 4 clearly evince, following the introduction of the new salary scale in 2015, with the added 5 per cent annual increment, the differential between public and private sector has widened for almost all wage distribution. The average differential has increased from 29.5 per cent to 52.0 per cent, a change of 22.5 percentage points. It also appears from the table that, those employees in the private sector, belonging to higher percentile of wage distribution, were able to adjust to the changed scenario in response to salary revision when compared to employees belonging to lower percentile of wage distribution.

Graphical presentation of wage differentials between public and private employees for 2010, 2013, and 2015-16 is given in figure 2. For all the four periods the findings are consistent with findings cited in global literature (Ehrenbergh and Schwarz, 1986; Blackaby et al., 1999; Melly, 2005; Birch, 2006; Elliott et al., 2007; Campos and Centeno, 2012; Christopulou and Monastiriotis, 2013; Lausev, 2014; Nikolic, 2014; Hospido and Moral-Benito, 2016). We find a similar trend of decreasing wage premium in public sector as one moves to higher quantile.

Figure 2: Public and Private sector wage differentials by years



Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

The blue line is the total wage differential which is the sum of coefficient effect (green line) and characteristics effect (red line).

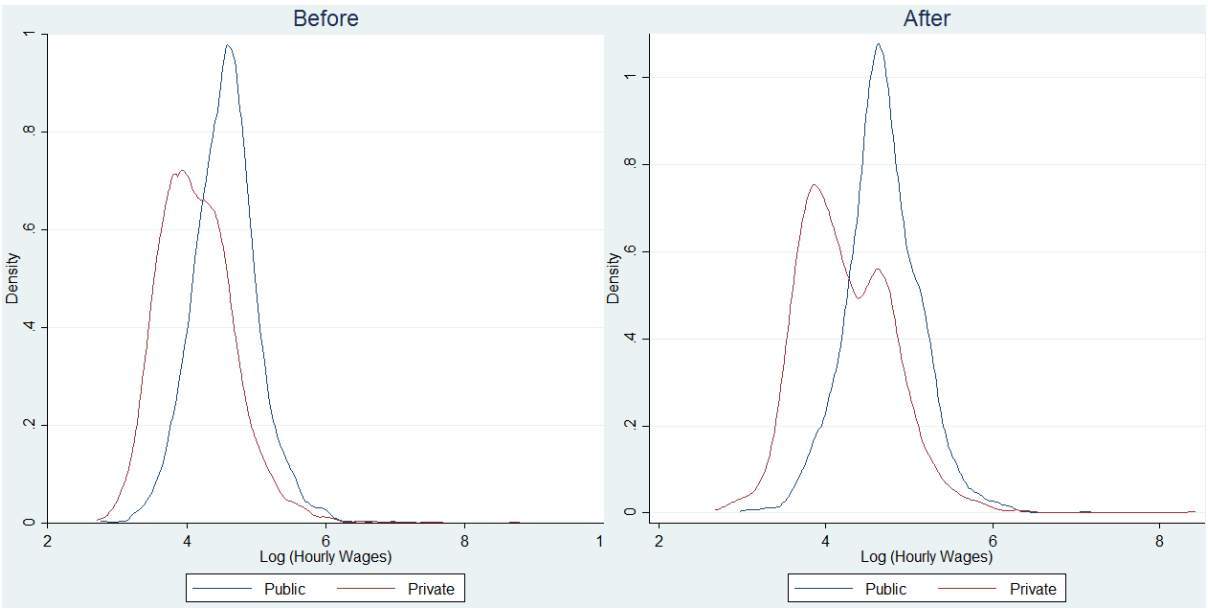
Bootstrap inference on quantile counterfactual decomposition of public-private wage differentials is given in Table 10 (annex 1). We find that the functional form of regression model that we specify for the above analysis is the correct one. The findings reject the null hypothesis of "no effect of observable distributions". As a result, we make a conclusion about the strong presence and stochastic dominance of wage gap in each decile of the wage distribution in Bangladesh. In addition, we reject the null hypothesis of "no effects of characteristics" and "no effect of coefficients". We can, thus, conclude that the public-private wage gap in Bangladesh is a combination of both coefficient effect and

characteristics effect. Whilst salary scale revisions are resulting in inequality in wage earnings, between public and private sector employees, there is a parallel increasing inequality between high and low-end employees within the private sector. In the next section we analyze how the government intervention in the labour market could have changed the labour market outcome and have accentuated the inequality between high and low paid private sector employees.

5.2. Government Induced Inequality

This sub-section quantifies the effect of salary scale revision for public sector employment in terms of wage differentials between the private and public sector. As is known, thanks to the 2015 salary scale revision, salaries of all government employees had almost doubled across all the salary ranges (scales). Towards this, we have used data of third quarter 2015 (data before the salary scale revision) and first quarter 2016 (data after the salary scale revision).

Figure 3: Distribution of Log Monthly Wages



Source: Authors, calculation using QLFS 2015-16

The density of the wages of public and private sector employees are displayed in figure 3. In the left panel, we have the density before the salary scale was revised while the right panel displays density following the salary scale revision. The density in the left panel shows that the group minimum wages are almost the same for both the groups but the private sector employees have the highest wage. The average wage, however, is higher for the public sector employees. Figure 3 shows a proportional rightward shift in density function after the change in the salary scale, both for low-paid and high-paid employees. After the salary scale change for the public sector employees, the density for private sector employees shows a double peak which indicates a shift in wages for higher paid employees but not the low paid ones. This gives a clear indication that the high paid employees in the private sector were able to change their wages in response to change in the salary scale for government employees, in contrast, low paid private sector employees were not able to do this, perhaps because of lack of bargaining power.

Table 5: Public-Private Wage Differential in Third Quarter 2015
Dependent Variable: Log of Hourly Wage

Quantile	$\tau(10)$	$\tau(20)$	$\tau(30)$	$\tau(40)$	$\tau(50)$	$\tau(60)$	$\tau(70)$	$\tau(80)$	$\tau(90)$	Oaxaca-Blinder
Total	0.481	0.538	0.486	0.507	0.482	0.401	0.345	0.312	0.285	0.417
effect	(0.039)	(0.027)	(0.301)	(0.017)	(0.019)	(0.025)	(0.021)	(0.027)	(0.042)	(0.014)
Char.	0.122	0.174	0.182	0.223	0.256	0.241	0.163	0.139	0.071	0.212
effect	(0.097)	(0.045)	(0.048)	(0.034)	(0.033)	(0.055)	(0.051)	(0.064)	(0.085)	(0.016)
Coeff.	0.359	0.363	0.303	0.284	0.226	0.159	0.182	0.172	0.213	0.206
effect	(0.101)	(0.046)	(0.043)	(0.036)	(0.035)	(0.054)	(0.048)	(0.069)	(0.091)	(0.019)

Source: Authors, calculation using QLFS 2015-16

Note: The Probit distribution model has been applied. Bootstrap standard error with 100 repetitions are given in parenthesis. For Oaxaca-Blinder robust standard error in parenthesis. The following explanatory variables are included in each group: age, age squared, education, education square, occupation dummy, rural dummy, and regional dummy, marital status, and gender dummy.

The Oaxaca-Blinder decomposition shows that, even before the salary structure change in the public sector, there was a 41.7 per cent wage differentials in the public sector, compared to the private sector, of which 20.6 per cent was the wage premium in the public sector. The quantile decomposition shows that, this wage differential is highest in the 40th percentile (50.7 per cent; 22.6 per cent is wage premium) and lowest in the 90th percentile (28.5 per cent). The insignificant characteristics effect indicates that public sector employees do not have any advantage in terms of their various productivity characteristics. It transpires from the Table 5 that the wage differential is higher at the bottom of the wage distribution and tends to be narrower at the top.

Table 6: Public-Private Wage Differentials in First Quarter 2016
Dependent Variable: Log of Hourly Wage

Quantile	$\tau(10)$	$\tau(20)$	$\tau(30)$	$\tau(40)$	$\tau(50)$	$\tau(60)$	$\tau(70)$	$\tau(80)$	$\tau(90)$	Oaxaca-Blinder
Total	0.557	0.588	0.624	0.579	0.501	0.428	0.321	0.319	0.287	0.453
effect	(0.025)	(0.021)	(0.022)	(0.019)	(0.023)	(0.029)	(0.025)	(0.028)	(0.028)	(0.018)
Char.	0.454	0.416	0.467	0.182	0.061	0.057	-0.015	-0.079	0.000	0.349
effect	(0.081)	(0.079)	(0.073)	(0.087)	(0.058)	(0.056)	(0.063)	(0.127)	(0.142)	(0.017)
Coeff.	0.104	0.172	0.157	0.397	0.440	0.372	0.336	0.399	0.287	0.103
effect	(0.084)	(0.075)	(0.071)	(0.083)	(0.058)	(0.061)	(0.067)	(0.132)	(0.144)	(0.017)

Source: Authors' calculation using QLFS 2015-16
Note: The Probit distribution model was applied for purposes of analysis. Bootstrap standard error with 100 repetitions are given in parenthesis. For Oaxaca-Blinder robust standard error in parenthesis. The following explanatory variables are included in each group: age, age squared, education, education square, occupation dummy, rural dummy, and regional dummy, marital status, and gender dummy.

As we noted earlier, the salary revision in the public sector had shifted the entire wage distribution spectrum for the public sector, but only partially for the private sector (at the top of the wage distribution). Accordingly, we expect that the change in the wage gap will be higher at the bottom of the wage distribution but relatively lower at the top. Table

6 shows that after the salary revision, public-sector wage premium stood at 31 per cent. This was the highest in the 30th percentile (compared to before the change).

Table 7: Summary of the effect of Salary scale revision on wage differentials

Quantile	$\tau(10)$	$\tau(20)$	$\tau(30)$	$\tau(40)$	$\tau(50)$	$\tau(60)$	$\tau(70)$	$\tau(80)$	$\tau(90)$	O-B
Before	0.557	0.588	0.624	0.579	0.501	0.428	0.321	0.319	0.287	0.453
After	0.481	0.538	0.486	0.507	0.482	0.401	0.345	0.312	0.285	0.417
Change	0.076	0.050	0.138	0.072	0.019	0.027	-0.024	0.007	0.002	0.036

Source: Authors' calculation

Table 7 shows the difference in wage differentials before and after the salary scale revision. Salary revision in public-sector had induced an increase in wage differentials by 13.8 per cent for the third decile. Increase in wage differentials due to public sector wage increase tends to decline as we move toward the higher deciles in wage distribution. For instance, the wage differentials increased by only roughly 1 per cent at the eighth decile. The mean decomposition shows that the wage differentials changed by 3.6 per cent because of public sector wage settlement. As we had inferred earlier, higher bargaining power of relatively high paid employees in the private sector may have enabled them to negotiate with employers in order to match revised pay scale of public sector which was not the case for the employees, low-paid private sector employees. As a result, consequent to public sector salary revision, inequality in earnings for private sector employees may have increased.

5.3. Assessment of Job Facilities and Flexibility in Public and Private Sector Jobs

In addition to the revealed wage premium for public sector employees 'other' benefits also contribute to the increasing demand for public employment. Table 8 provides percentage coverage of pension/retirement fund, maternal leave, paid sick leave, and transportation/subsidy in food both for the public and private sector employees.

Table 8: Comparison of Employment Facilities in Public and Private Jobs (%)

	2013		2015-16		2016-17	
	Public	Private	Public	Private	Public	Private
Pension/Retirement fund[9]	99.9	14.4	96.3	25.0	95.9	21.8
Maternity Leave	64.5	28.3	95.8	46.6	90.0	47.9
Paid sick Leave	98.6	40.6	97.0	65.3	94.1	69.8
Subsidy in Food[10]	35.5	18.4	29.1	13.1	30.2	16.7

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

Table 8 shows that, coverage of public sector employees under pension/retirement fund facilities is quite high about than 96.0 per cent or more. In the private sector, the coverage is rather volatile-about 14.4 per cent in 2013, 25.0 per cent in 2015-16 and 21.8 per cent in 2016-17. Thus, the relative difference in the eligibility for pension/retirement benefits, is yet another why public sector jobs are becoming more attractive in Bangladesh. Indeed, public sector employees have greater coverage under other benefits such as maternity leave and paid sick leave. In 2016-17 the coverage under maternity leave has risen to 90.0 per cent in the public sector while for the private sector the rate was 47.9 per cent. More than 90 per cent of public sector employees were under coverage of paid sick leave whilst for private sector employees the figure was about 70 per cent coverage of these enjoying facilities such as transportation/subsidy for food, as is evidenced by Table 8, was rather low for both the sectors (only 30.2 per cent in public sector and 16.7 per cent in private sector in 2016-17).

Table 9: Average Working Hours by Sector

	2010	2015-16	2016-17

[9] Public sector employees entitled are generally for compulsory pension/retirement fund. On the other hand, for private sector pension/retirement fund is not mandatory according to the Labour law 2013 (amended).

[10] Includes free transportation in 2015-16, and 2016-17.

Public Sector	46.5	47.1	48.6
Private	53.6	54.6	54.8

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

It is also to be noted that, weekly average working hours in public and private sector jobs was 48.6 hours and 54.8 hours respectively in 2016-17 (Table 9). Thus, weekly hours worked was in general 12.7 per cent more for employees in the private sector compared to those in the public sector.

As the analysis in this paper indicate, these may have contributed to the heightened demand for public sector jobs witnessed in recent times. While looking for a job or changing the current job, all these working hours, factors-wage differentials, non-wage, benefits – have a bearing on the decision of the prospective job-seekers.

6. Concluding Remarks

This paper has examined the possible underlying factors contributing to the relative attractiveness of public sector jobs in Bangladesh in recent times. The analysis, deploying appropriate technique, clearly brings out that following salary scale revision of particularly 2015, public sector jobs in the country. Whilst this there has been a shift favouring holds for the entire range of wage/salary distribution curve, it is more discernible at for jobs in the entry level. Although higher-paid private sector employees appear to be able to adjust their salaries in response to government pay scale revision, the relatively low-paid ones were not able to do. Moreover, public sector jobs had the added advantage of non-wage benefits (pension, contributory funds, sick/maternity leave etc), in terms of the ambit of coverage of beneficiaries. Al these have combined to the shift in preference for public sector jobs in Bangladesh. Policymakers will need to take

advantage of this and take initiatives to recruit qualified young women and men for public sector jobs. Indeed, this could be an opportunity to raise human resource endowment of public service in Bangladesh.

A non-linear decomposition of determinants of public-sector employment could throw additional insights as regards why there has been a shift in public sector job preference in Bangladesh in recent years. More rigorous analysis need to be carried out to capture the effects of revisions in public sector pay scale on job preference for government jobs vis-à-vis private sector jobs.

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Annex 1:

Table 10: Bootstrap inference on counterfactual quantile process

Null Hypothesis	**KS-statistic**	**CMS-statistic**
Correct specification of the parametric model 0	0.69	0.76
Correct specification of the parametric model 1	0.47	0.48
Differences between the observable distributions		
No effect: QE(tau)=0 for all taus	0.00	0.00
Constant effect: QE(tau)=QE(0.5) for all taus	0.00	0.00
Stochastic dominance: QE(tau)>0 for all taus	0.93	0.93
Stochastic dominance: QE(tau)<0 for all taus	0.00	0.00
Effects of characteristics		
No effect: QTE(tau)=0 for all taus	0.00	0.00

Constant effect: QE(tau)=QE(0.5) for all taus	0.29	0.29
Stochastic dominance: QE(tau)>0 for all taus	0.94	0.94
Stochastic dominance: QE(tau)<0 for all taus	0.00	0.00
Effects of coefficients		
No effect: QE(tau)=0 for all taus	0.00	0.00
Constant effect: QE(tau)=QE(0.5) for all taus	0.00	0.01
Stochastic dominance: QE(tau)>0 for all taus	0.84	0.92
Stochastic dominance: QE(tau)<0 for all taus	0.00	0.00

Source: Authors' calculation

Annex 2:

Table 11: Choice of functional form and variation of the average wage gap

Year	Dependent Variable: Log (hourly wage)	Dependent Variable: Log (Monthly wage/weekly wage)
2016-17	52.0 per cent	40.7 per cent
2015-16	41.9 per cent	27.1 per cent
2013[11]	33.1 per cent	9.6 per cent
2010[10]	29.5 per cent	15.4 per cent

Source: Authors' calculation; Data source: LFS (2010, 2013, 2015-16, and 2016-17)

We stated in section 4 that due to different working hours in public and private sector employment the log (monthly wage) tends to underestimate the wage differentials. Table 8 provides empirical evidence of our argument which is consistent with (Ahmed & McGillivray, 2015).

[11] Log (weekly wage) as dependent variable